

NASA TECH BRIEF

Ames Research Center



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Low-Profile Landing-Gear Assembly

The problem:

To stow two landing-gear trucks, each with six double wheels, in the shadow of the main engine intake ducts of a supersonic transport aircraft without adding to the frontal area of the aircraft or appreciably increasing total aircraft drag.

The solution:

An assembly of cylinders, links, actuators, and gears that permits the landing-gear unit to be retracted into a low profile for stowage in the aircraft.

How it's done:

The diagram illustrates the gear retraction sequence. At the lower left corner is a side view of the truck and landing-gear assembly in the extended position (near sidewheels not shown). The landing-gear unit is attached to the body of the structure by ball bearings; the truck assembly consists of conventional truck beams with wheels, axles, and brake reaction links, and includes dual-truck-rotation hop damper actuators. Torque links and the hop damper control the pitch and yaw of the assembly and hold the truck in a horizontal position until the aircraft is airborne. Then, a horizontal rotation lock is disengaged and

the truck is rotated horizontally by means of rotation gears which are driven by dual actuators. The horizontal lock is reengaged and the truck is rotated vertically by retracting the hop damper actuators to their minimum length. The jury strut is unlocked by a built-in actuator and the entire assembly is retracted about the main trunnion by an upper reaction actuator.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Ames Research Center
Moffett Field, California 94035
Reference: TSP 75-10055

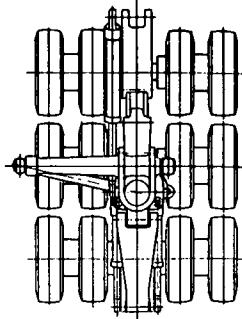
Patent status:

NASA has decided not to apply for a patent.

Source: Philip M. Harper and Frank D. Neumann of
Boeing Commercial Airplane Company
under contract to
Ames Research Center
(ARC-10786)

(continued overleaf)

EXTENDED



INBD.



FWD.

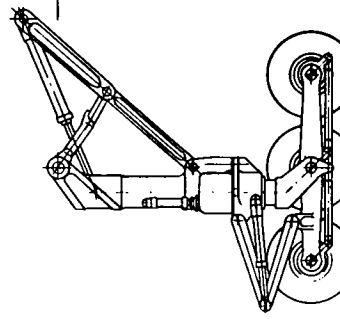


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INBD.



FWD.



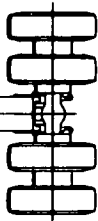
UP



FWD.

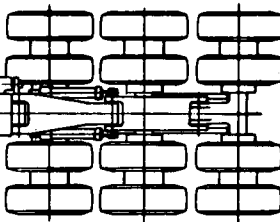
GEAR RETRACTION SEQUENCE

1



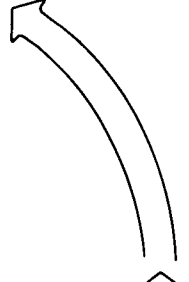
1

2.



2.

3



RETRACTED

